

I. CMPE 360 HOMEWORK IV - MATLAB ASSIGNMENTS

The aim of this homework is to familiarize you with MATLAB. The assignment consists of three problems, which you are **required** to solve using MATLAB. Please submit your code, along with outputs.

A. Exercise I

Create a function *mycross()*, which takes two 3-dimensional vectors as input and returns the cross product. Compare with the builtin MATLAB function *cross()*.

B. Exercise II

Create a function *psudoinv* that calculates the pseudo-inverse of a given matrix. That is, for a matrix A , your function is to return the matrix $(A^T A)^{-1} A^T$. Compare with the builtin MATLAB function *pinv()*.

C. Exercise III

Create a **recursive** MATLAB function to estimate the determinant of a given square matrix. Analyze your code and comment on the time complexity of your function in terms of n , the dimension of the input matrix. Compare both the result and the time required with the builtin MATLAB function *det()*.